

# PATENT ABSTRACTS OF JAPAN

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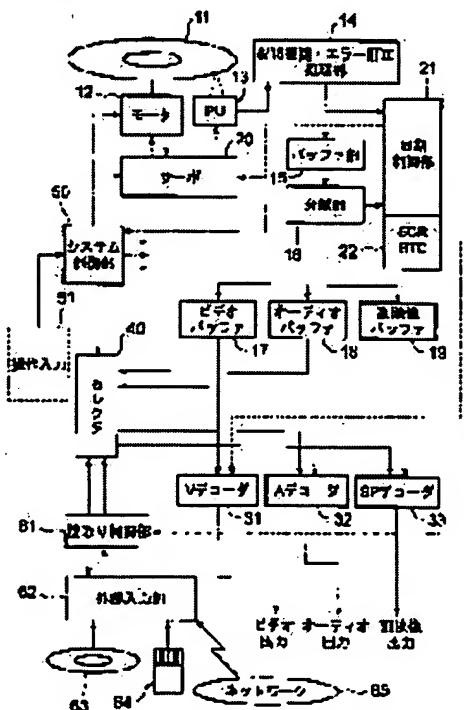
YOSHIDA HITOSHI

(54) SYNCHRONOUS REPRODUCING DEVICE FOR INTERNAL AND EXTERNAL STREAM DATA, AND STREAM DATA DISTRIBUTING DEVICE

(57) Abstract:

**PROBLEM TO BE SOLVED:** To increase the use additional value of a DVD video disk by taking a desired language, a subtitle, and audio in from outside even when they are not recorded on a disk and reproducing them synchronously with video.

**SOLUTION:** At an external input means 62, audio stream data and/or subordinate video stream data which are taken in from outside are prepared. Through user's operation, the audio stream data and/or subordinate video stream data which are taken in from outside are supplied to an audio decoder 32 and/or a subordinate video decoder 33 through a selector 40 in synchronism with video stream data reproduced from the DVD video disk.



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**CLAIMS**

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**[Claim(s)]**

[Claim 1] 1st means to incorporate from a medium the 1st stream data which has intermittently the timing information for obtaining a synchronization to mutual stream data, and the 2nd stream data, Said 1st [ the ] incorporated with said 1st means, and a buffering means to buffer each of the 2nd stream data, 2nd means to incorporate the 3rd stream data including said timing information and the same timing information from the outside, A selection means to choose and output either of said 2nd stream data from said buffering means, and said 3rd stream data from said 2nd means, When supplying the 3rd stream data incorporated with said 2nd means to said selection means, said timing information of said 3rd stream data, The read control means supplied so that said timing information of said 1st stream data may synchronize, The synchronous regenerative apparatus of the inside-and-outside stream data characterized by providing a decoding means by which the 3rd [ said ] stream data chosen with said selection means or said 2nd stream data is supplied.

[Claim 2] Said 1st stream data is the synchronous regenerative apparatus of the inside-and-outside stream data according to claim 1 characterized by having either the audio data stored in the packet train corresponding to [ have the video data stored in the packet train, and ] said video data in said 2nd stream data, or subimage data.

[Claim 3] Said read control means is the synchronous regenerative apparatus of the inside-and-outside stream data according to claim 2 characterized by obtaining the timing extraction of said 3rd stream data based on the system clock reference data (hour entry) from the system clock section which operates synchronizing with the timing information of said video data.

[Claim 4] It is the synchronous regenerative apparatus of the inside-and-outside stream data according to claim 1 which said 3rd stream data is data currently recorded on the disk, and are characterized by said 1st means being a means to read said 3rd stream data in said disk.

[Claim 5] It is the synchronous regenerative apparatus of the inside-and-outside stream data according to claim 1 which said 3rd stream data is data currently recorded on semiconductor memory, and are characterized by said 1st means being a means to read said 3rd stream data in said semiconductor memory.

[Claim 6] It is the synchronous regenerative apparatus of the inside-and-outside stream data according to claim 1 which are data which said 3rd stream data is incorporated through a channel, and are recorded on the disk, and are characterized by said 1st means being a means to read said 3rd stream data in said disk.

[Claim 7] It is the synchronous regenerative apparatus of the inside-and-outside stream data according to claim 1 which are data which said 3rd stream data is incorporated through a channel, and are memorized by semiconductor memory, and are characterized by said 1st means being a means to read said 3rd stream data in said semiconductor memory.

[Claim 8] Stream data distribution equipment characterized by having a means to transmit the 3rd stream data including the timing information which synchronizes with the said 1st and 2nd stream data to the regenerative apparatus of the medium by which the 1st stream data which has intermittently the

timing information for obtaining a synchronization to respectively mutual stream data, and the 2nd stream data were recorded through a channel.

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

[Field of the Invention] This invention is prepared in the equipment which plays for example, digital versatile disc (DVD) video, and relates to the synchronous regenerative apparatus of effective inside-and-outside stream data, and the stream data distribution equipment which distributes external stream data to this regenerative apparatus.

**[0002]**

[Description of the Prior Art] In recent years, a DVD video regenerative apparatus spreads and many disks which recorded various films also came to be marketed. In a DVD video system, two or more title data streams from which language differs can be selectively reproduced now to a video-data stream. Moreover, two or more audio data streams from which language differs to a video-data stream can also be selectively reproduced now. There are U.S.P.5,758,007 as conventional well-known reference.

[0003] Moreover, a DVD videodisk spreads not only Japan but overseas, and came to be sold in each country. The DVD videodisk manufactured in each country is manufactured considering using it in domestic [ each ] as a premise in many cases. For this reason, even if it is the videodisk in which the same film was mentioned, that from which corresponding title language and the language of an audio differ may be recorded by each country. For this reason, even if an alien comes to Japan, for example and it purchases a videodisk, language's title or audio of a mother country of the alien concerned may not be recorded.

[0004] Moreover, the DVD videodisk purchased with much trouble is also considered also when the voice stream of hope is not reproduced with sufficient quality for a blemish or an error.

**[0005]**

[Problem(s) to be Solved by the Invention] Then, even if this invention has the title and audio of language which are not recorded on a disk, it incorporates the title and audio of language of hope from the outside, and aims at offering video, the synchronous regenerative apparatus of the inside-and-outside stream data which could be made to carry out synchronous playback, and an approach.

**[0006]**

[Means for Solving the Problem] 1st means to incorporate from a medium the 1st stream data which has intermittently the timing information for obtaining a synchronization to mutual stream data in order that this invention may attain the above-mentioned object, and the 2nd stream data, Said 1st [ the ] incorporated with said 1st means, and a buffering means to buffer each of the 2nd stream data, 2nd means to incorporate the 3rd stream data including said timing information and the same timing information from the outside, A selection means to choose and output either of said 2nd stream data from said buffering means, and said 3rd stream data from said 2nd means, When supplying the 3rd stream data incorporated with said 2nd means to said selection means, said timing information of said 3rd stream data, It has the read control means supplied so that said timing information of said 1st stream data may synchronize, and a decoding means by which the 3rd [ said ] stream data chosen with said selection means or said 2nd stream data is supplied.

[0007] Thereby, synchronizing with the 1st stream data, the 3rd stream data which is not recorded on the above-mentioned medium is reproducible.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing.

[0009] Drawing 1 is the gestalt of 1 implementation of this invention. 11 is a DVD videodisk and revolution actuation \*\* is carried out by the motor 12. Record \*\*\*\*\* information is read by the DVD videodisk 11 by the optical pickup 13. It gets over by a recovery and the error correction processing section 14, and error correction processing of the read information is carried out. The data by which the error correction was carried out are inputted into the separation section 16 through the track buffer section 15. The separation section 16 separates a video packet, an audio packet, and a subimage packet, and supplies each packet to a video buffer, an audio buffer, and a subimage buffer.

[0010] The synchronous-control section 21 incorporates and analyzes the information and attribute information which show the compression method which is the management information to which it restored, i.e., information required to reproduce a video audio, navigation information, etc., and performs setting out of the mode of operation of each data-processing block, setting out of timing of operation, etc.

[0011] The system clock section 22 outputs the reference clock for synchronizing actuation of the whole equipment synchronizing with the system time clock reference data contained in the reproduced pack. The whole equipment operates based on this reference clock.

[0012] The output video stream of a video buffer 17 is directly supplied to the video decoder 31. However, the audio stream outputted from the audio buffer 18 and the subimage stream outputted from the subimage buffer 19 are inputted into the audio decoder 32 and the subimage decoder 33 through a selector 40, respectively. The selector 40 is usually set up so that the output of the audio buffer 18 and the subimage buffer 19 may be chosen and derived.

[0013] although there are two or more streams as an audio stream and a subimage stream, respectively -- the stream selection information from the system control section 50 -- for example, the audio buffer 18 -- it sets subimage buffer 19, and the stream of arbitration is chosen and outputted.

[0014] The system control section 50 recognizes the stream number while recognizing how many streams there are considering the management information from the separation section 16 as an audio stream of the disk under reception and current playback. Moreover, while recognizing how many streams, as for the system control section 50, recognize similarly the stream number which is making current selection as a subimage stream under current playback from the content of management information, the stream number is recognized. Moreover, the stream number which is making current selection is also recognized.

[0015] If there is audio stream modification or subimage stream modification actuation from the actuation input section 51, the system control section 50 will carry out modification control of the data logging area of the audio buffer 17 and the subimage buffer 18 so that the data of the selected stream may be obtained.

[0016] If the modification actuation (or external stream selection actuation) command to the stream number which the system control section 50 does not recognize from the actuation input section 51 is furthermore given, the system control section 51 will control a selector 40. That is, the system control section 50 is controlled in this case for a selector 40 to read and to choose the stream from a control section 61.

[0017] The read control section 61 incorporates the audio outputted from the external input section 62 and subimage stream data, or its either, and supplies it to a selector 40. In order to synchronize with the video information under current playback from the synchronous-control section 61, as for the read control section 61, the presentation time stamp is received.

[0018] Therefore, when incorporating the audio which exists in the external input section 62 and subimage stream data, or its either and supplying it to a selector 40, the read control section 61 compares the presentation time stamp of external stream data with the presentation time stamp of video stream

data, and supplies corresponding external stream data to a selector.

[0019] The external stream data incorporated external input section 62 here are further incorporated through the disk media 63, such as CD (compact disk), DVD, a hard disk (HDD), DVD-R, and DVD-RW, the semiconductor memory medium 64, and the communication media by a network etc.

[0020] The DS specified to the DVD video system here and its management information are explained.

[0021] The layered structure of a video object (VOB) is shown in drawing 2. VOB is equivalent to one title and is also called a video title set. This is equivalent to a part for the inclusion of 1 title of a film. In order to manage the playback, a video object is divided into two or more cels, and is managed. One cel is set up here so that two or more video object units (VOBU) may be included. VOBU is a unit which serves as time amount for 0.4 - 1.0 seconds by video recovery time amount. One VOBU consists of a navigation pack (NV\_PCK), two or more video packs (V\_PCK), two or more audio packs (A\_PCK), and two or more subimagery packs (SP\_PCK).

[0022] It is arranged so that one NV\_PCK may be located in the head of one VOBU. NV\_PCK is control data referred to when reproducing the data of the VOBU which belongs. NV\_PCK consists of data search information (DSI) and picture control information (PCI).

[0023] PCI shows the initiation presentation time amount of VOBU, and termination presentation time amount. Moreover, PCI has the address of VOBU which should be reproduced to the degree of each angle type, when non seamless angle-type information is shown and the video stream (angle type) to reproduce is changed. Moreover, it also has highlights information and the initiation presentation time amount of highlights information, termination presentation time amount, carbon button display-position information, etc. are included.

[0024] DSI has the system clock of NV\_PCK containing Book DSI, the ending address of VOBU, the ending address of the reference (I) picture of VOBU, etc. as general information. Moreover, as seamless playback information (SML\_PBI), it has initiation, an ending address, etc. of the video in the size of the category of VOBU, the ending address of an interleave unit (unit divided as a change unit of a multi-angle type), and the following interleave unit that should be jumped and a starting address, and VOB. As seamless angle-type information (SML\_AGLI), the address and size of an interleave unit of a destination are prepared several angle-type minutes next further again. VOBU search information (VOBU\_SRI) GA preparation is carried out as information used when performing special playback of coma delivery, backward feed, etc. furthermore, and the start address of two or more VOBU(s) before and behind Book VOBU is described. When it jumps, the address of the audio which should synchronize in the location of the VOBU concerned, or a subimage is also described as synchronization information (SYNC) further again.

[0025] Drawing 3 shows the pack configuration of a video pack, an audio pack, and a subimagery pack. The pack header is prepared in the pack and a system clock reference (SCR) is described by this pack header. This SCR is described by VOBU containing I picture. This SCR resets the system clock generator in a regenerative apparatus, and is used for setting up the conventional time. Furthermore, the packet header is added following the pack header. The presentation time stamp (PTS) is described by the packet header. This PTS is surely described by VOBU containing I picture. Then, a video data, audio data, or subimage data exists. 1 pack length is specified to 2048 bytes.

[0026] As mentioned above, the presentation time stamp (PTS) is described by each pack, and the playback synchronization of video, an audio, and a subimage can be obtained in it by regenerating in accordance with this PTS and the hour entry acquired from the system clock in a regenerative apparatus. Above PTS is incorporated by the synchronous-control section 21 of drawing 1. That is, when the synchronous-control section 21 reads data in an optical disk and PTS of a packet header has shifted from the internal hour entry, adjustment of a reading station (timing) is performed through a servo system 18.

[0027] Next, the information for grasping the number of the audio stream currently recorded on the DVD videodisk and subimage streams is explained.

[0028] Drawing 4 shows a part of management information (video-title-set information: VTSI) currently recorded on the DVD videodisk. A video title set management table (VTS\_MAT), a video title

TAITORUSETTO program chain information (PGCI) table, a cell address table, etc. exist in video title set information (VTSI). The number of audio streams and audio attribute table which are contained in the video title set (VOB) managed here are described by VTS\_MAT here. Moreover, the attribute table of the number of subimage streams and a subimage is described. It is shown how many the number of audio streams has an audio stream corresponding to this VOB. For example, if it is the audio from which language is different with a monophonic recording, in a DVD system, a maximum of eight streams are recordable. The attribute of each stream is described by the audio attribute table. As an attribute, an audio type (with those [ no ] with language), application modes (karaoke mode, surround mode, etc.), a quantifying bit number, the number of audio channels, etc. exist.

[0029] As the number of subimage streams, it is the number of streams of the subimage corresponding to this VOB, and even a maximum of 32 pieces can be recorded in a DVD system further again. The attribute of each \*\*\*\*\* stream is described by the subimage attribute table. The information which shows [ whether it is the information and subimage type language which show as an attribute that run length compression is carried out for pixels, and ] a special code (is it the subimage expanded and displayed or not?) is described.

[0030] Moreover, the number of audio streams, an attribute, the number of subimage streams, an attribute, etc. can be grasped also from the information on the video title set PGCI table contained in VTSI.

[0031] That is, an audio stream control table, a subimage stream control table, cel playback information, etc. exist in a video title set PGCI table. The program chain information (PGCI) which shows the playback sequence of the cel explained by drawing 2 in a video title set PGCI table is described.

Therefore, PGCI specifies cel playback information. Therefore, the system control section 50 acquires a program chain, and recognizes cel playback information (C\_PBI) further. The start address of VOB of the head of a cel and the start address of VOB of the last of a cel are described by cel playback information (C\_PBI). Therefore, the system control section 50 will control a servo system 18 and a motor 12, will read data in an optical disk, and will acquire VOB of a cel unit according to cel playback information.

[0032] Here, the audio stream control information table and the subimage stream control information table are also described by the general information in the above-mentioned video title set PGCI table. The flag and stream number which show whether it is what has each effective audio stream within this program chain (PGC) in an ODI male trim control information table are described. Moreover, each stream number according to the flag and display aspect (4:3, the wideness, letter box) which show whether it is an effective thing within this program chain (PGC) in a subimage stream control information table etc. is described.

[0033] Therefore, the system control section 50 can recognize how many an audio stream is in the DVD videodisk under [ out of the management information shown in drawing 4 ] present playback, and how many there is any subimage stream.

[0034] Drawing 5 shows actuation of the system control section 50 when a user changes the stream of an audio or a subimage, after carrying out playback initiation of the DVD videodisk 11. The system control section reads management information (step A1), and incorporates the stream information explained by drawing 4 . Thereby, an audio or one subimage stream - M can be recognized (step A2).

[0035] Suppose that the user performed stream change actuation and inputted the stream number N here (step A3). Then, it judges whether N exists in the inputted stream numbers1-M (step A4). When it exists, the output gate is controlled so that the stream concerned is extracted from the audio buffer 18 or the subimage buffer 19. And the system control section 50 is set to step (step A5, A6) 4 which controls the selection condition of a selector 40 so that the decoder to which the output of the audio buffer 18 or the subimage buffer 19 corresponds is supplied. When N does not exist in the stream numbers1-M which the user chose The system control section 50 controls a selector 40, and the audio stream or subimage stream from the read control section 61 is supplied to a decoder 32 or a decoder 33 (step A7).

[0036] Thereby, a user can hear the audio of different language from the audio language currently recorded on the DVD videodisk 11. Moreover, about a subimage, the subimage of different language

from the subimage language currently recorded on the DVD videodisk 11 can be seen in a title. [0037] Here, the stream data incorporated from the outside are packet structure as shown by drawing 3, and the presentation time stamp (PTS) is described by the packet header as timing information so that it may synchronize with the video packet of the DVD videodisk under present playback. Therefore, the system clock reference inside equipment is supplied also to the read control section 61. Therefore, an external input packet (audio packet) is also read in the external input section 62 synchronizing with the conventional time inside equipment the same with a video packet being read inside equipment synchronizing with the internal conventional time (system clock).

[0038] By the above-mentioned explanation, when a larger number than the number of streams currently recorded on the disk of selection information was given, it explained as that by which the system control section 50 changes and controls a selector 40. however, it comes out not to mention preparing not only this but the handler which reads a selector 40 in the beginning compulsorily and is changed to a control-section 61 side.

[0039] In this case, many errors have arisen in the voice stream of hope from the blemish etc., and it is [ in / the DVD videodisk purchased with much trouble ] effective when the voice quality at the time of playback is not good. Furthermore, the content of the voice stream of hope is effective when version up, correction, etc. are made by translation etc. Moreover, naturally it is also the criteria of this invention not only voice but the stream of a subimage and to be built so that it can incorporate from the outside.

[0040] As an external input means, the gestalt of various kinds of operations is possible.

[0041] For example, the configuration of reading the stream data which have a disk drive and are recorded on CD may be used. Furthermore, the configuration of reading the stream data which have a memory (IC) connection and are memorized by memory may be used. Furthermore, you may be the configuration of having a receiving means, once saving the stream data distributed in the network at buffer memory or a hard disk, and reading stream data in this medium. Not only voice but the thought of this invention is not limited to the gestalt of the above-mentioned operation. That is, the stream data of the language which is not recorded on the DVD videodisk put on the market conventionally are distributed to the user who wishs through a network, and it can develop also as business which collects the tariffs.

[0042] As shown in drawing 6 , provider equipment 70 can transmit audio stream data or subimage stream data through a network 71 according to the demand from a user. The equipment by the side of a user (a personal computer or DVD regenerative apparatus) receives the signal from a network by the transceiver section 72, and gets over. The data to which it restored are recognized in the data recognition section 73, and when it is stream data, they extract a packet which was explained by the drawing 3 . The extracted packet is stored in a hard disk in the preservation section 75 at record or memory. Moreover, when this preservation is completed, the system control section 50 accumulates accounting information in the accounting information are recording section 76.

[0043] accounting information -- being periodical (a moon arrangement or week unit) -- it is transmitted to provider equipment 70 through the transceiver section 72. Provider equipment 70 has a user's job accounting table. Accounting information is used for tariff pulling down from a user's bank account by the agreement with a user and a provider. Or a bill is mailed to a user from a provider.

[0044] When a user makes demands on a provider for the stream data of hope, the linguistic codes of choice etc. are described to be a provider's address and the disk identification number of a disk to a transmitting packet by the actuation input 51. And the stream data of choice can be required of provider equipment 70 by performing transmitting actuation. in addition, when distributing audio stream data and subimage stream data, it comes out not to mention distributing not only through the Internet but through the telephone line or a wireless circuit.

[0045]

[Effect of the Invention] incorporating the title and audio of language of hope from the outside, being able to carry out synchronous playback with video, and raising the utilization added value of a DVD videodisk, even if there are the title and audio of language which are not recorded on a disk according to this invention, as explained above -- it can \*\*.

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**TECHNICAL FIELD**

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[Field of the Invention] This invention is prepared in the equipment which plays for example, digital versatile disc (DVD) video, and relates to the synchronous regenerative apparatus of effective inside-and-outside stream data, and the stream data distribution equipment which distributes external stream data to this regenerative apparatus.

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**PRIOR ART**

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[0003] Moreover, a DVD videodisk spreads not only Japan but overseas, and came to be sold in each country. The DVD videodisk manufactured in each country is manufactured considering using it in domestic [ each ] as a premise in many cases. For this reason, even if it is the videodisk in which the same film was mentioned, that from which corresponding title language and the language of an audio differ may be recorded by each country. For this reason, even if an alien comes to Japan, for example and it purchases a videodisk, language's title or audio of a mother country of the alien concerned may not be recorded.

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] incorporating the title and audio of language of hope from the outside, being able to carry out synchronous playback with video, and raising the utilization added value of a DVD videodisk, even if there are the title and audio of language which are not recorded on a disk according to this invention, as explained above -- it can \*\*.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] Then, even if this invention has the title and audio of language which are not recorded on a disk, it incorporates the title and audio of language of hope from the outside, and aims at offering video, the synchronous regenerative apparatus of the inside-and-outside stream data which could be made to carry out synchronous playback, and an approach.

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**MEANS**

[Means for Solving the Problem] 1st means to incorporate from a medium the 1st stream data which has intermittently the timing information for obtaining a synchronization to mutual stream data in order that this invention may attain the above-mentioned object, and the 2nd stream data, Said 1st [ the ] incorporated with said 1st means, and a buffering means to buffer each of the 2nd stream data, 2nd means to incorporate the 3rd stream data including said timing information and the same timing information from the outside, A selection means to choose and output either of said 2nd stream data from said buffering means, and said 3rd stream data from said 2nd means, When supplying the 3rd stream data incorporated with said 2nd means to said selection means, said timing information of said 3rd stream data, It has the read control means supplied so that said timing information of said 1st stream data may synchronize, and a decoding means by which the 3rd [ said ] stream data chosen with said selection means or said 2nd stream data is supplied.

[0007] Thereby, synchronizing with the 1st stream data, the 3rd stream data which is not recorded on the above-mentioned medium is reproducible.

[0008]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing.

[0009] Drawing 1 is the gestalt of 1 implementation of this invention. 11 is a DVD videodisk and revolution actuation \*\* is carried out by the motor 12. Record \*\*\*\*\* information is read by the DVD videodisk 11 by the optical pickup 13. It gets over by a recovery and the error correction processing section 14, and error correction processing of the read information is carried out. The data by which the error correction was carried out are inputted into the separation section 16 through the track buffer section 15. The separation section 16 separates a video packet, an audio packet, and a subimage packet, and supplies each packet to a video buffer, an audio buffer, and a subimage buffer.

[0010] The synchronous-control section 21 incorporates and analyzes the information and attribute information which show the compression method which is the management information to which it restored, i.e., information required to reproduce a video audio, navigation information, etc., and performs setting out of the mode of operation of each data-processing block, setting out of timing of operation, etc.

[0011] The system clock section 22 outputs the reference clock for synchronizing actuation of the whole equipment synchronizing with the system time clock reference data contained in the reproduced pack. The whole equipment operates based on this reference clock.

[0012] The output video stream of a video buffer 17 is directly supplied to the video decoder 31. However, the audio stream outputted from the audio buffer 18 and the subimage stream outputted from the subimage buffer 19 are inputted into the audio decoder 32 and the subimage decoder 33 through a selector 40, respectively. The selector 40 is usually set up so that the output of the audio buffer 18 and the subimage buffer 19 may be chosen and derived.

[0013] although there are two or more streams as an audio stream and a subimage stream, respectively -- the stream selection information from the system control section 50 -- for example, the audio buffer 18 -

- it sets subimage buffer 19, and the stream of arbitration is chosen and outputted.

[0014] The system control section 50 recognizes the stream number while recognizing how many streams there are considering the management information from the separation section 16 as an audio stream of the disk under reception and current playback. Moreover, while recognizing how many streams, as for the system control section 50, recognize similarly the stream number which is making current selection as a subimage stream under current playback from the content of management information, the stream number is recognized. Moreover, the stream number which is making current selection is also recognized.

[0015] If there is audio stream modification or subimage stream modification actuation from the actuation input section 51, the system control section 50 will carry out modification control of the data logging area of the audio buffer 17 and the subimage buffer 18 so that the data of the selected stream may be obtained.

[0016] If the modification actuation (or external stream selection actuation) command to the stream number which the system control section 50 does not recognize from the actuation input section 51 is furthermore given, the system control section 51 will control a selector 40. That is, the system control section 50 is controlled in this case for a selector 40 to read and to choose the stream from a control section 61.

[0017] The read control section 61 incorporates the audio outputted from the external input section 62 and subimage stream data, or its either, and supplies it to a selector 40. In order to synchronize with the video information under current playback from the synchronous-control section 61, as for the read control section 61, the presentation time stamp is received.

[0018] Therefore, when incorporating the audio which exists in the external input section 62 and subimage stream data, or its either and supplying it to a selector 40, the read control section 61 compares the presentation time stamp of external stream data with the presentation time stamp of video stream data, and supplies corresponding external stream data to a selector.

[0019] The external stream data incorporated external input section 62 here are further incorporated through the disk media 63, such as CD (compact disk), DVD, a hard disk (HDD), DVD-R, and DVD-RW, the semiconductor memory medium 64, and the communication media by a network etc.

[0020] The DS specified to the DVD video system here and its management information are explained.

[0021] The layered structure of a video object (VOB) is shown in drawing 2. VOB is equivalent to one title and is also called a video title set. This is equivalent to a part for the inclusion of 1 title of a film. In order to manage the playback, a video object is divided into two or more cels, and is managed. One cel is set up here so that two or more video object units (VOBU) may be included. VOBU is a unit which serves as time amount for 0.4 - 1.0 seconds by video recovery time amount. One VOBU consists of a navigation pack (NV\_PCK), two or more video packs (V\_PCK), two or more audio packs (A\_PCK), and two or more subimagery packs (SP\_PCK).

[0022] It is arranged so that one NV\_PCK may be located in the head of one VOBU. NV\_PCK is control data referred to when reproducing the data of the VOBU which belongs. NV\_PCK consists of data search information (DSI) and picture control information (PCI).

[0023] PCI shows the initiation presentation time amount of VOBU, and termination presentation time amount. Moreover, PCI has the address of VOBU which should be reproduced to the degree of each angle type, when non seamless angle-type information is shown and the video stream (angle type) to reproduce is changed. Moreover, it also has highlights information and the initiation presentation time amount of highlights information, termination presentation time amount, carbon button display-position information, etc. are included.

[0024] DSI has the system clock of NV\_PCK containing Book DSI, the ending address of VOBU, the ending address of the reference (I) picture of VOBU, etc. as general information. Moreover, as seamless playback information (SML\_PBI), it has initiation, an ending address, etc. of the video in the size of the category of VOBU, the ending address of an interleave unit (unit divided as a change unit of a multi-angle type), and the following interleave unit that should be jumped and a starting address, and VOB. As seamless angle-type information (SML\_AGLI), the address and size of an interleave unit of a

destination are prepared several angle-type minutes next further again. VOBU search information (VOBU\_SRI) GA preparation is carried out as information used when performing special playback of coma delivery, backward feed, etc. furthermore, and the start address of two or more VOBU(s) before and behind Book VOBU is described. When it jumps, the address of the audio which should synchronize in the location of the VOBU concerned, or a subimage is also described as synchronization information (SYNC) further again.

[0025] Drawing 3 shows the pack configuration of a video pack, an audio pack, and a subimagery pack. The pack header is prepared in the pack and a system clock reference (SCR) is described by this pack header. This SCR is described by VOBU containing I picture. This SCR resets the system clock generator in a regenerative apparatus, and is used for setting up the conventional time. Furthermore, the packet header is added following the pack header. The presentation time stamp (PTS) is described by the packet header. This PTS is surely described by VOBU containing I picture. Then, a video data, audio data, or subimage data exists. 1 pack length is specified to 2048 bytes.

[0026] As mentioned above, the presentation time stamp (PTS) is described by each pack, and the playback synchronization of video, an audio, and a subimage can be obtained in it by regenerating in accordance with this PTS and the hour entry acquired from the system clock in a regenerative apparatus. Above PTS is incorporated by the synchronous-control section 21 of drawing 1. That is, when the synchronous-control section 21 reads data in an optical disk and PTS of a packet header has shifted from the internal hour entry, adjustment of a reading station (timing) is performed through a servo system 18.

[0027] Next, the information for grasping the number of the audio stream currently recorded on the DVD videodisk and subimage streams is explained.

[0028] Drawing 4 shows a part of management information (video-title-set information: VTSI) currently recorded on the DVD videodisk. A video title set management table (VTS\_MAT), a video title TAITORUSETTO program chain information (PGCI) table, a cell address table, etc. exist in video title set information (VTSI). The number of audio streams and audio attribute table which are contained in the video title set (VOB) managed here are described by VTS\_MAT here. Moreover, the attribute table of the number of subimage streams and a subimage is described. It is shown how many the number of audio streams has an audio stream corresponding to this VOB. For example, if it is the audio from which language is different with a monophonic recording, in a DVD system, a maximum of eight streams are recordable. The attribute of each stream is described by the audio attribute table. As an attribute, an audio type (with those [ no ] with language), application modes (karaoke mode, surround mode, etc.), a quantifying bit number, the number of audio channels, etc. exist.

[0029] As the number of subimage streams, it is the number of streams of the subimage corresponding to this VOB, and even a maximum of 32 pieces can be recorded in a DVD system further again. The attribute of each \*\*\*\*\* stream is described by the subimage attribute table. The information which shows [ whether it is the information and subimage type language which show as an attribute that run length compression is carried out for pixels, and ] a special code (is it the subimage expanded and displayed or not?) is described.

[0030] Moreover, the number of audio streams, an attribute, the number of subimage streams, an attribute, etc. can be grasped also from the information on the video title set PGCI table contained in VTSI.

[0031] That is, an audio stream control table, a subimage stream control table, cel playback information, etc. exist in a video title set PGCI table. The program chain information (PGCI) which shows the playback sequence of the cel explained by drawing 2 in a video title set PGCI table is described. Therefore, PGCI specifies cel playback information. Therefore, the system control section 50 acquires a program chain, and recognizes cel playback information (C\_PBI) further. The start address of VOBU of the head of a cel and the start address of VOBU of the last of a cel are described by cel playback information (C\_PBI). Therefore, the system control section 50 will control a servo system 18 and a motor 12, will read data in an optical disk, and will acquire VOBU of a cel unit according to cel playback information.

[0032] Here, the audio stream control information table and the subimage stream control information table are also described by the general information in the above-mentioned video title set PGCI table. The flag and stream number which show whether it is what has each effective audio stream within this program chain (PGC) in an ODI male trim control information table are described. Moreover, each stream number according to the flag and display aspect (4:3, the wideness, letter box) which show whether it is an effective thing within this program chain (PGC) in a subimage stream control information table etc. is described.

[0033] Therefore, the system control section 50 can recognize how many an audio stream is in the DVD videodisk under [ out of the management information shown in drawing 4 ] present playback, and how many there is any subimage stream.

[0034] Drawing 5 shows actuation of the system control section 50 when a user changes the stream of an audio or a subimage, after carrying out playback initiation of the DVD videodisk 11. The system control section reads management information (step A1), and incorporates the stream information explained by drawing 4. Thereby, an audio or one subimage stream - M can be recognized (step A2).

[0035] Suppose that the user performed stream change actuation and inputted the stream number N here (step A3). Then, it judges whether N exists in the inputted stream numbers 1-M (step A4). When it exists, the output gate is controlled so that the stream concerned is extracted from the audio buffer 18 or the subimage buffer 19. And the system control section 50 is set to step (step A5, A6) 4 which controls the selection condition of a selector 40 so that the decoder to which the output of the audio buffer 18 or the subimage buffer 19 corresponds is supplied. When N does not exist in the stream numbers 1-M which the user chose The system control section 50 controls a selector 40, and the audio stream or subimage stream from the read control section 61 is supplied to a decoder 32 or a decoder 33 (step A7).

[0036] Thereby, a user can hear the audio of different language from the audio language currently recorded on the DVD videodisk 11. Moreover, about a subimage, the subimage of different language from the subimage language currently recorded on the DVD videodisk 11 can be seen in a title.

[0037] Here, the stream data incorporated from the outside are packet structure as shown by drawing 3 , and the presentation time stamp (PTS) is described by the packet header as timing information so that it may synchronize with the video packet of the DVD videodisk under present playback. Therefore, the system clock reference inside equipment is supplied also to the read control section 61. Therefore, an external input packet (audio packet) is also read in the external input section 62 synchronizing with the conventional time inside equipment the same with a video packet being read inside equipment synchronizing with the internal conventional time (system clock).

[0038] By the above-mentioned explanation, when a larger number than the number of streams currently recorded on the disk of selection information was given, it explained as that by which the system control section 50 changes and controls a selector 40. however, it comes out not to mention preparing not only this but the handler which reads a selector 40 in the beginning compulsorily and is changed to a control-section 61 side.

[0039] In this case, many errors have arisen in the voice stream of hope from the blemish etc., and it is [ in / the DVD videodisk purchased with much trouble ] effective when the voice quality at the time of playback is not good. Furthermore, the content of the voice stream of hope is effective when version up, correction, etc. are made by translation etc. Moreover, naturally it is also the criteria of this invention not only voice but the stream of a subimage and to be built so that it can incorporate from the outside.

[0040] As an external input means, the gestalt of various kinds of operations is possible.

[0041] For example, the configuration of reading the stream data which have a disk drive and are recorded on CD may be used. Furthermore, the configuration of reading the stream data which have a memory (IC) connection and are memorized by memory may be used. Furthermore, you may be the configuration of having a receiving means, once saving the stream data distributed in the network at buffer memory or a hard disk, and reading stream data in this medium. Not only voice but the thought of this invention is not limited to the gestalt of the above-mentioned operation. That is, the stream data of the language which is not recorded on the DVD videodisk put on the market conventionally are distributed to the user who wishs through a network, and it can develop also as business which collects

the tariffs.

[0042] As shown in drawing 6 , provider equipment 70 can transmit audio stream data or subimage stream data through a network 71 according to the demand from a user. The equipment by the side of a user (a personal computer or DVD regenerative apparatus) receives the signal from a network by the transceiver section 72, and gets over. The data to which it restored are recognized in the data recognition section 73, and when it is stream data, they extract a packet which was explained by the drawing 3 . The extracted packet is stored in a hard disk in the preservation section 75 at record or memory. Moreover, when this preservation is completed, the system control section 50 accumulates accounting information in the accounting information are recording section 76.

[0043] accounting information -- being periodical (a month arrangement or week unit) -- it is transmitted to provider equipment 70 through the transceiver section 72. Provider equipment 70 has a user's job accounting table. Accounting information is used for tariff pulling down from a user's bank account by the agreement with a user and a provider. Or a bill is mailed to a user from a provider.

[0044] When a user makes demands on a provider for the stream data of hope, the linguistic codes of choice etc. are described to be a provider's address and the disk identification number of a disk to a transmitting packet by the actuation input 51. And the stream data of choice can be required of provider equipment 70 by performing transmitting actuation. in addition, when distributing audio stream data and subimage stream data, it comes out not to mention distributing not only through the Internet but through the telephone line or a wireless circuit.

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[Translation done.]

**\* NOTICES \***

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

[Drawing 1] The block block diagram showing the gestalt of 1 implementation of this invention.

[Drawing 2] The layered structure of the video object of a DVD video system, and the explanatory view of the content of data of a navigation pack.

[Drawing 3] Video, an audio, the configuration explanatory view of a subimage pack.

[Drawing 4] The explanatory view showing a part of management information of a DVD video system.

[Drawing 5] The flow chart shown in order to explain the example of the important section of the equipment of this invention of operation.

[Drawing 6] The explanatory view showing the example of the acquisition means of the external stream data of the equipment by this invention.

**[Description of Notations]**

11 -- A DVD videodisk, 12 -- A motor, 13 -- Pickup, 14 -- A recovery and the error correction processing section, 15 -- The track buffer section, 16 -- Separation section, 17 -- A video buffer, 18 -- An audio buffer, 19 -- Subimage buffer, 20 [ -- A video decoder, 32 / -- It is a coder and 33 at an audio. / -- It is a coder and 40 at a subimage. / -- A selector, 50 / -- The system control section, 51 / -- An actuation input, 61 / -- A read control section, 62 / -- External input section. ] -- A servo system, 21 -- The synchronousr-control section, 22 -- The system clock section, 31

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[Translation done.]

